

Remarks/Arguments:

Claims 1-9 are presently pending. Claim 1 has been amended. Claims 10-12 have been added. Reconsideration is respectfully requested in view of the above amendments and the following remarks.

Claim Rejections Under 35 U.S.C. § 112

Claims 1-9 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. In particular, the Office Action sets forth "claim [1] recites 'the lubricant passes from the annular lubricant groove to the vertical hole without reentering the forward leading groove' which is not described in the specification." Applicant herein amends claim 1 to remove this language. Accordingly, this objection is obviated.

Claim Rejections Under 35 U.S.C. § 103

Claims 1-9 stand rejected under 35 U.S.C. 103(a) as unpatentable over Nobuo et al. (JP S62-44108) in view of Goodnight (US Pat. 6457561B1) further in view of Choi (US Pat. 5971724) and Stocklein et al. (US 2,996,240)." However, Applicant respectfully submits that these claims are patentable over the cited references for the reasons set forth below.

Applicant's invention, as recited by claim 1, includes features which are not disclosed, taught, or suggested by the cited art, namely:

...an annular lubricant groove having an inner rim and an outer rim...

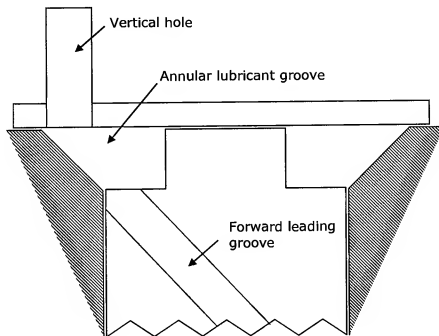
...wherein the shaft includes...

...a circumferential notch defining in part the inner rim of the annular lubricant groove, the circumferential notch having a lower axial surface...

...a forward leading groove...extending to and opening at the lower axial surface of the circumferential notch....

The forward leading groove extends to and opens at the lower axial surface of the circumferential notch. This feature is described in the application, for example, at page 4, line 16 to page 6, line 2; and FIGS. 1-3. No new matter is added.

The above-described features of claim 1 are shown in the exemplary figure below for the purposes of illustration.



As shown in the above figure, the shaft includes a circumferential notch that has a lower axial surface. The forward leading groove extends to and opens at the lower axial surface of the circumferential notch. Lubricant passes up the forward leading groove and into the circumferential notch (i.e., the inner rim of the annular lubricant groove). Lubricant in the annular lubricant groove passes outward (due to centrifugal force) and up into the vertical hole. Applicant respectfully submits that the cited art fails to disclose, teach, or suggest at least the above features of claim 1.

The Office Action acknowledges that Nobuo in view of Goodnight and Choi fails to disclose the above features of claim 1. Applicant respectfully submits that the

addition of Stocklein fails to make up for the deficiencies of Nobuo, Goodnight, and Choi with respect to at least these features.

Stocklein is directed to a compressor. As shown in FIGS. 2-3A, Stocklein discloses a shaft 7 having an axial bore 18. Shaft 7 is positioned in bearing 6. Bearing 6 includes vertical groove a which is in communication with storage chamber b. Stocklein discloses that oil travels from axial bore 18 up through vertical groove a, and then to storage chamber b, and then to vertical bore g. See Stocklein at column 3, line 38 to column 4, line 2, and FIGS. 2-3A.

The Office Action asserts that the inner portion of storage chamber b in FIG. 2 of Stocklein corresponds to the circumferential notch of claim 1. However, Stocklein fails to disclose, teach, or suggest a groove formed in shaft 7 that extends to a lower axial surface of storage chamber b. To the contrary, Stocklein discloses vertical groove a is formed in bearing 6, and not shaft 7. This is different from claim 1, which requires a forward leading groove formed in the shaft that extends to and opens at the lower axial surface of a circumferential notch formed in the shaft.

Accordingly, for the above reasons, Applicant respectfully submits that the cited art fails to disclose, teach, or suggest "the shaft includes...a circumferential notch defining in part the inner rim of the annular lubricant groove, the circumferential notch having a lower axial surface [and] a forward leading groove...extending to and opening at the lower axial surface of the circumferential notch," as recited in claim 1.

It is because Applicant's claimed invention includes the above features that the following advantages are achieved. "[F]orward leading groove 137 opens into inner rim of annular lubricant groove 141, and the lubricant is pushed to the outer rim of annular lubricant groove 141 by the centrifugal force [generated by the rotation of main shaft 123], so that little amount of the lubricant flows [backward] into forward leading groove 137." See the application at page 7, lines 11-14.

Accordingly, for the reasons set forth above, claim 1 is allowable over the cited references. Withdrawal of the rejection and allowance of claim 1 is respectfully requested.

Claims 2-9 include all of the features of claim 1, from which they depend. Thus, claims 2-9 are also allowable over the cited references for at least the reasons set forth above with respect to claim 1. Withdrawal of the rejection and allowance of claims 2-8 is respectfully requested.

New Claims 10-12

Applicant herein adds new claims 10-12. Claim 10 includes all of the features of claim 1, from which it depends. Thus, claim 10 is allowable over the cited references for at least the reasons set forth above with respect to claim 1.

Claim 11, while not identical to claim 1, includes features similar to the allowable features discussed above with respect to claim 1. In particular, claim 11 recites "a forward leading groove...extending to and opening at the lower axial surface of the circumferential notch." Thus, claim 11 is allowable over the cited references for at least the reasons set forth above with respect to claim 1.

Claim 12 includes all of the features of claim 11, from which it depends. Thus, claim 12 is allowable over the cited references for at least the reasons set forth above with respect to claim 12.

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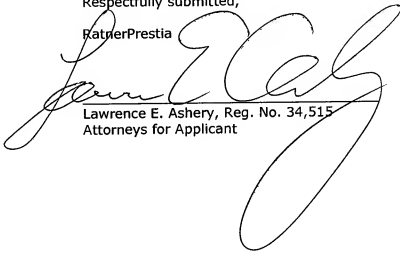
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Conclusion:

Applicant respectfully asserts that the above-identified application is in condition for allowance, which action is respectfully requested.

Respectfully submitted,

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